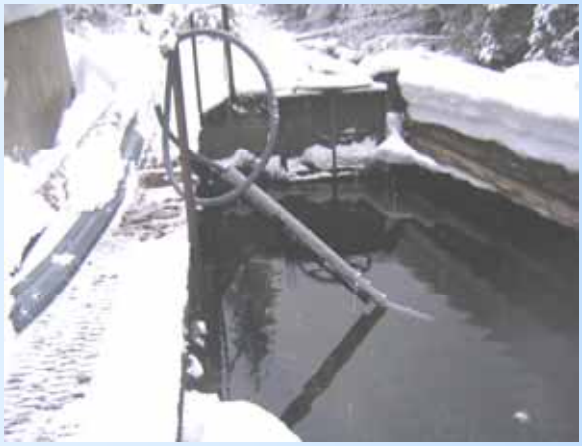
Protecting Drinking Water: The New Myrtle Creek Remote Turbidity Monitoring Station Bonners Ferry, Idaho

In September 2003 a wildfire consumed approximately 3600 acres of the Myrtle Creek watershed. Myrtle Creek has provided drinking water to the City of Bonners Ferry since 1928. Once the fire was contained, concerns turned to the potential for damage to the drinking water intake and the 6 miles of pipeline which transfer the water to the city water treatment plant where it is treated so that it is safe for human consumption. Damage would likely come from sedimentation loads which could result from snow melt or rain events in a watershed now unprotected by natural vegetation.

The Department of Environmental Quality (DEQ) Coeur d'Alene regional office investigated the installation of remote turbidity monitoring and alarming equipment which could be installed at the intake. They designed a project with equipment that could be read remotely and would provide alarm capability in the event of high turbidity. This would allow the plant to be shut down preventing sedimentation deposits in the 6 mile pipeline and potential damage to the water treatment plant.

A remote turbidity monitoring station was successfully installed at the Myrtle Creek intake in January 2004. The equipment was purchased and installed through a contract with Electronic Data Solutions (EDS) in Jerome, Idaho. Rusty Munn, surface water manager at EDS provided a wealth of technical support throughout the implementation of this project. Representatives from the City of Bonners Ferry and drinking water staff from the DEQ Coeur d'Alene regional office assisted with the installation.



Myrtle Creek intake; the turbidity sensor is housed in a gray PVC conduit mounted to the catwalk.

Myrtle Creek and the intake structure used to divert the creek for a drinking water source. January 2004.

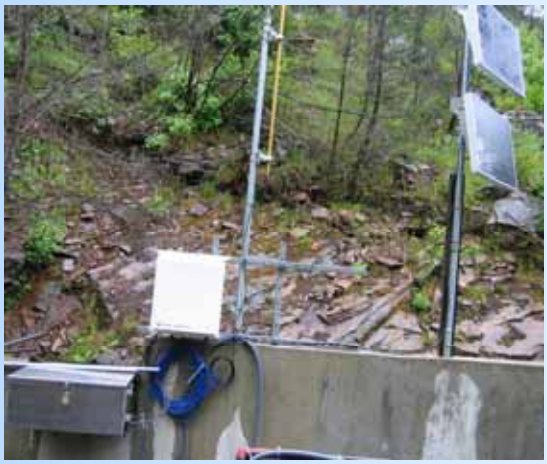
The monitoring station is comprised of a sensor to measure turbidity levels and water temperature at the water intake, and a communications system tied into the operating system at the water intake. Because a local repeater system was already available for use, the City of Bonners Ferry only pays twenty dollars per month for this service.

The data logger is programmed to trigger an alarm when turbidity levels exceed a preset point. The alarm starts a series of automated communications that ends with the automated closure of the Myrtle Creek valve in about two minutes.

The turbidity standard at the intake has been exceeded several times since the equipment was installed. The event of greatest magnitude occurred shortly after a storm dropped 1.5 inches of rain in the watershed within 20 minutes. This event, which occurred on July 4, 2004, produced a turbidity high of 2100 NTU. Normal turbidities from the creek are approximately 1.5 NTU and drinking water standards require less than 0.5 NTU. Had the equipment not been installed, considerable damage would have occurred to the city's water treatment plant, and Bonners Ferry citizens would have been without safe and reliable drinking water.

Use of the monitoring equipment as the watershed recovers from the wildfire has contributed significantly to the City of Bonners Ferry's ability to successfully protect the 6 miles of transmission line between the intake and the treatment plant from failure due to excessive sediment. Most importantly, this monitoring capability will enable the city to provide drinking water that continues to meet safe drinking water standards during the transitional period of rehabilitation and stabilization of the Myrtle Creek watershed.

Myrtle Creek intake. May 2005.



Battery box, data logger, antenna and solar panels (left to right).